IN THE CLAIMS

What is claimed is:

1. (Original) A circuit comprising:

a differential amplifier having a differential input terminal pair and a differential output terminal pair, wherein the differential amplifier provides a differential oscillating signal at the differential output terminal pair; and

an inductor-capacitor (LC) tank coupled between the differential input and output terminal pairs, wherein the LC tank comprises an inductive element coupled in parallel with a capacitive element, wherein the capacitive element comprises:

a first varactor pair coupled to receive a first differential control voltage, the first control voltage i) sets a capacitance of each varactor of the first varactor pair and ii) provides a first level of adjustment to an oscillation frequency of the oscillating signal, and

a second varactor pair coupled to receive a second differential control voltage, the second control voltage i) sets a capacitance of each varactor of the second varactor pair and ii) provides a second level of adjustment to the oscillation frequency of the oscillating signal, wherein the first and second levels of adjustment are different.

2. (Original) The invention as recited in claim 1, wherein the capacitive element is AC-coupled between the differential input and output terminal pairs.

3. (Original) The invention as recited in claim 1, wherein the differential amplifier comprises a set of cross-coupled transistors.

4. (Original) The invention as recited in claim 3, wherein the set of cross-coupled transistors is configured as a pair of back-to-back inverters.

5. (Original) The invention as recited in claim 1, wherein each of the first and second pairs of varactors are configured as back-to-back varactors.

6. (Original) The invention as recited in claim 1, wherein the circuit is a voltage-controlled oscillator (VCO).

7. (Original) The invention as recited in claim 6, wherein the VCO is employed in a phase-locked loop (PLL) circuit, the first differential control voltage represents a feedback error for process variations of the PLL circuit, and the second differential control voltage represents a feedback phase error of the PLL circuit.

8. (Original) The invention as recited in claim 1, further comprising at least one other pair of varactors, each of the at least one other pair of varactors coupled to receive a corresponding differential control voltage to i) set a capacitance of each varactor of the at least one other varactor pair and ii) provide a corresponding level of adjustment to the oscillation frequency of the oscillating signal.

9. (Original) The invention as recited in claim 1, further comprising a filter, coupled between a source voltage and the differential output terminal pair of the differential amplifier, the filter adapted to filter one or more harmonics of the oscillation frequency.

10. (Original) The invention as recited in claim 1, wherein the circuit is embodied in an integrated circuit.

11. (Newly Added) A circuit comprising:

an amplifier having an input terminal and an output terminal, wherein the amplifier is configured to i) amplify a signal at the input terminal and ii) provide an oscillating signal at the output terminal; and

an impedance element having an inductive element and a capacitive element, the impedance element coupled between the input terminal and the output terminal of the amplifier, wherein the capacitive element comprises:

a first variable capacitor coupled to receive a first control voltage, the first control voltage i) setting a capacitance of the first variable capacitor and ii) providing a first level of adjustment to an oscillation frequency of the oscillating signal, and

a second variable capacitor coupled to receive a second control voltage, the second control voltage i) setting a capacitance of the second capacitor and ii) providing a second level of adjustment to the oscillation frequency of the oscillating signal, wherein the first and second levels of adjustment are different.

12. (Newly Added) The invention as recited in claim 11, wherein the circuit is a voltage-controlled oscillator (VCO).

13. (Newly Added) The invention as recited in claim 12, wherein the VCO is employed in a phase-locked loop (PLL) circuit, the first differential control voltage represents a feedback error for process variations of the PLL circuit, and the second differential control voltage represents a feedback phase error of the PLL circuit.

14. (Newly Added) The invention as recited in claim 11, further comprising at least one other variable capacitor, each of the at least one other variable capacitors coupled to receive a corresponding control voltage to i) set a capacitance the at least one other variable capacitor and ii) provide a corresponding level of adjustment to the oscillation frequency of the oscillating signal.

15. (Newly Added) Apparatus for generating an oscillating signal, the apparatus comprising:

an amplifier having an input terminal and an output terminal, wherein the amplifier provides a differential oscillating signal at the output terminal; and

an inductor-capacitor (LC) tank coupled between the input terminal and the output terminal of the amplifier, wherein the LC tank comprises an inductive element coupled in parallel with a capacitive element, and wherein the capacitive element comprises:

a first varactor pair coupled to receive a first control voltage, wherein the first control voltage i) sets a capacitance of each varactor of the first varactor pair and ii) provides a first level of adjustment to an oscillation frequency of the oscillating signal, and

a second varactor pair coupled to receive a second control voltage, wherein the second control voltage i) sets a capacitance of each varactor of the second varactor pair and ii) provides a second level of adjustment to the oscillation frequency of the oscillating signal, wherein the first and second levels of adjustment are different.